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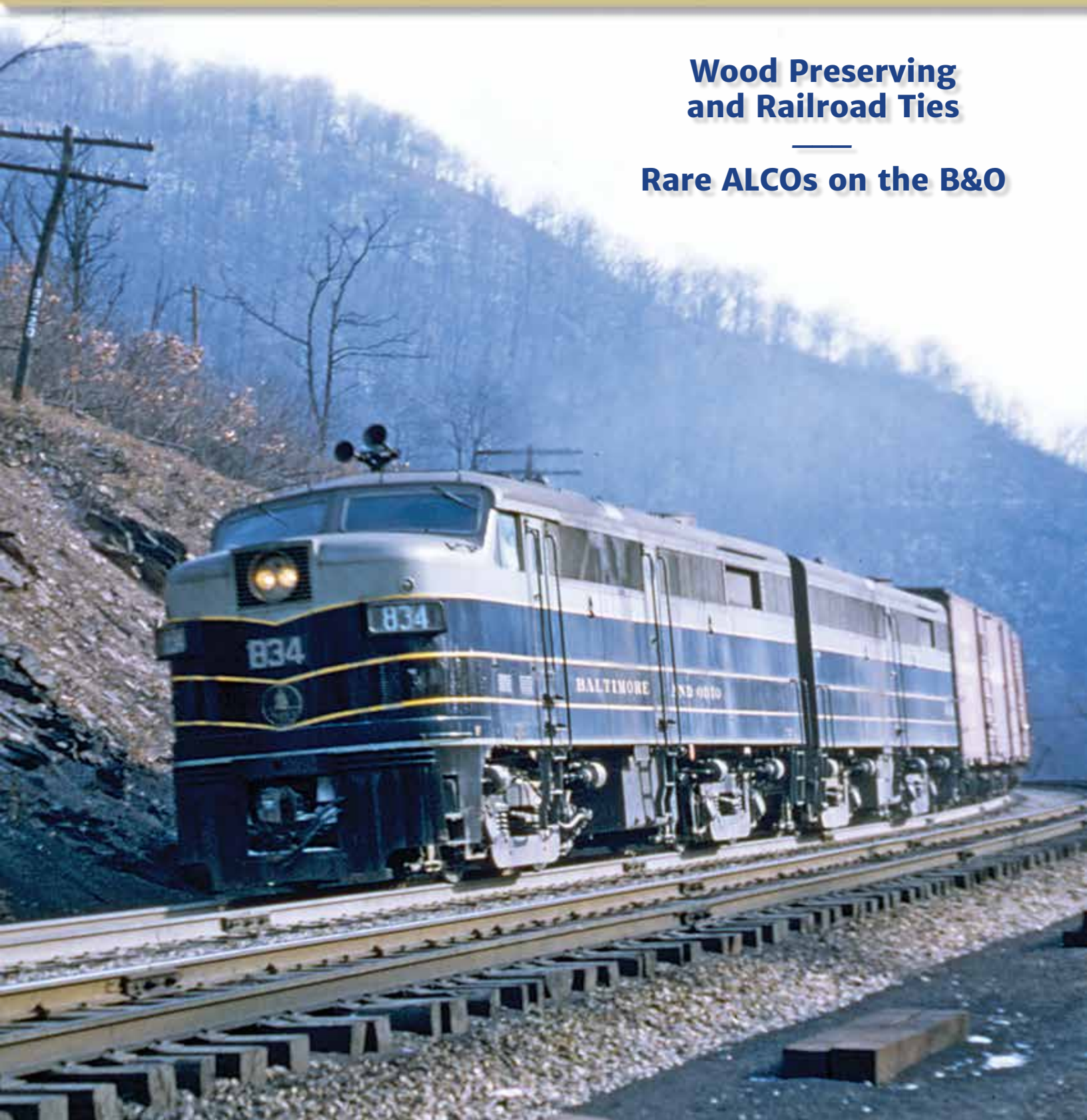
Wood Preserving and Railroad Ties

Rare ALCOs on the B&O



Message from the President

Quite a bit has happened since my last letter so let us get started. We completed the purchase of our new building in Eldersburg, Maryland in late April. We set a goal of making modifications and improvements at the new facility and being out of the old building in Arbutus by August 1st. We met the goal ten days early. This was accomplished through the hard work of many volunteers, especially Grant Berry. His pride, effort, and countless hours of work got the building ready for our open house after the Eastern Mini-Con in late July. Additionally, Grant has assumed the position of Building Manager and volunteered to fill the director position vacated by Bob Witt, who had to step down for health reasons. We wish Bob all the best and a speedy recovery.

Now some specifics about the new Archives/Headquarters Building progress. After contacting the Carroll County Public School System following school closures, we were able to acquire some much needed furniture. This included file cabinets, tables, AV carts, bookcases, padded chairs, a flat file, with more to come. The interior of the building is coming along nicely, but more work is needed. While there is ample electrical lighting, all work areas have large windows to allow in natural light. Much of the Society's resources are housed in new shelving and bins for easier access for cataloging and research. Shelving needs to be installed in the library, and reference materials and books need to be unpacked. Display cases and electrical outlets need to be installed in the display hallway.

In the basement, drywall needs to be hung on new walls and partitions, a new drop ceiling needs to be installed, and lighting needs to be rewired. The exterior walls of the building need to have peeling paint scraped, primed, and repainted. Within two or three years, there is a strong possibility that we will need a new roof. A portion of donations will be reserved for that. In the center of this issue of the *Sentinel* are a few photographs showing what has been accomplished in little over four months.

Funding for the building is going well. Many thanks to those who have contributed toward our goal of $350,000. We have collected $195,000 in donations. The B&ORHS 300 Club has been quite successful. In some cases the donations have exceeded the minimum $300. In two cases the donations were so large we moved the donors into the "*Cincinnatian* Supporter" group. Your president has established a committee to develop strategies to market the society after we reach our opening goal. The plan will be

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In This Issue

On the Covers

FRONT COVER: Wayne Sherwin caught ALCO FA-2 844 (originally 833A) on the head end of a merchandise train westbound through Fairhope, Pennsylvania in February 1954. The photograph previously appeared in the 2000 B&OHRS calendar (February). B&O ALCOs are the subject of a Walt Appel article that starts on page 17.

BACK COVER: Dave Ingles used a telephoto lens to capture this shot of an A-A-B-A quartet of ALCOs in front of the Willard, Ohio roundhouse on August 5, 1962. They were seldom seen on the Chicago or St. Louis ends of the system. By this time the FA-2/FB-2 units—4004 (805), 4024 (825), 5007 (815X), and 4019 (819A)—had the area above the number boards that used to be light gray painted dark blue.

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P. O. Box 1608
Sykesville, Maryland 21784

E-mail: *info@borhs.org*
Website: *borhs.org*
Missing *Sentinel*: *storemanager@borhs.org*

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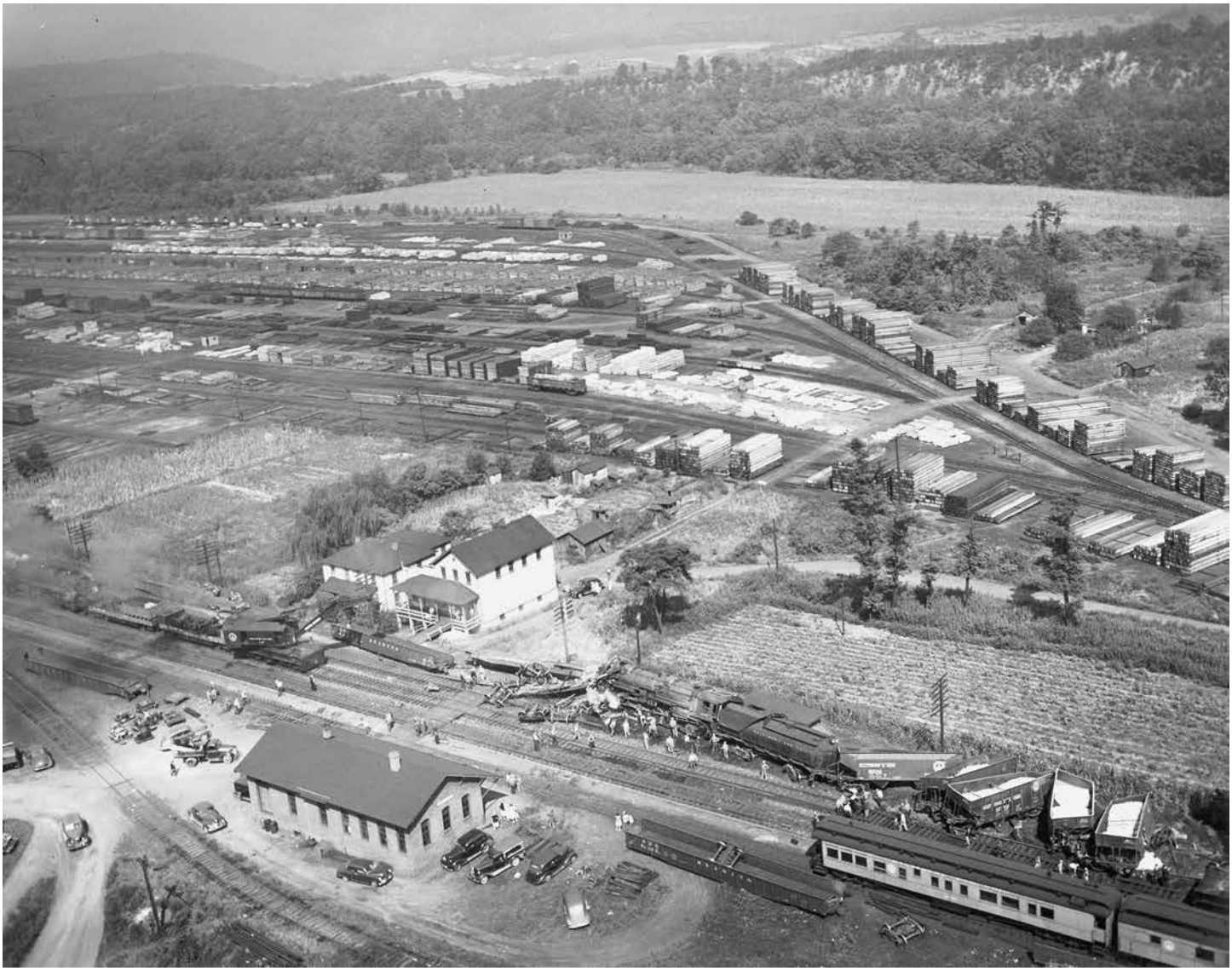

Although this photograph was obviously taken to document the derailment of a freight train at Green Spring, West Virginia, it also provides a nice view of the "green" lumber storage area at the east end of the B&O's tie treatment plant there. Apparently taken in the 1930s or 1940s, it also shows the Green Spring passenger station in the foreground. The crane will soon have the "Big Six" 2-10-2 back on the rails and life on the B&O, the plant, and the town will be back to normal.

Crossties, Creosote, and Wood Preserving:
The Foundation of Railways, the Lifeblood of My Family

by Barbara Park

[Editor's note: *This article originally appeared in the July 2015 issue of the RABO (Retired Administrators of the B&O Railroad, Its Affiliates and Successors) Club News & Notes. It is being reprinted in the Sentinel with the author's permission. A number of changes have been made to the original, based on additional information provided by the author and her cousin David Shelkey, Jr. All photographs in the article are from the author's family collection.]*

Those of us who love the B&O all have stories to tell of being introduced to some part of the romance of the train in our childhood. Mine is no different. As a little girl on summer vacation in the late 1940s and early 1950s at my grandmother's home in Dawson, Pennsylvania, a little northwest of Connellsville, I loved seeing B&O steam locomotives hauling freight trains on the tracks that bisected the town. Being on the main line from Washington, D.C. to Chicago, there were, of course, several trains per hour.

Although my grandmother's house was the third from the tracks on one of the cross streets, the noise never annoyed me. To the contrary, I loved it, and lying in bed at night, I could hear the very faint rumbling in the distance and the eventual wail of the whistle blowing for the numerous grade crossings. The blue passenger cars thrilled me, and as I sat on my grandmother's porch glider at dusk, I could see passengers at tables

This appears to be a postcard view of the Adelaide, Pennsylvania, tie treatment plant, probably from the early 1900s. To the right side of the image, finished ties are being stored on a large area of fill.

in the dining cars. Oh, how I longed to be in there with them, riding the *Capitol Limited,* and being pampered by waiters in crisp white uniforms!

Like many of you, I have had numerous ancestors—grandfathers, uncles, and cousins—who worked for the B&O. However, this article is not about locomotives or trains, but rather about the support (literally) for these trains, without which the trains could not run. This article is about the preserving of wood ties (also called crossties). Because my grandfather, John E. Younkin, managed several wood preserving plants for the Wood Preserving Division of the Koppers Company, I grew up acquiring the knowledge of sawmills, creosote, crossties, telegraph and telephone poles, and pilings. More on Grandpap, as we called him, in a while.

Crossties: The Beginning and Today

Crossties have been an integral part of railway transportation since the first railroad was built as a "wagon way" between 1603 and 1604 in the East Midlands of England. It ran for about two miles to assist in the haulage of coal. Laying the track back then was similar to the practice in use today. For the rails to maintain the proper width (or gauge), they have to be securely fastened to crossties (called "sleepers" in England). Ballast is first placed on the graded roadbed to permit drainage, then between the ties to keep the track from shifting. The gauge on this first railway was four feet, six inches, not much different from the today's standard gauge in the U.S., four feet, eight and a half inches.

In 1914, The Railway Education Bureau stated that there were approximately 375,000 miles of railway track in the United States, with the average number of ties per mile of track between 2,800 and 2,900. At that time an estimated one billion ties were in use and with the average life of the tie in service being less than eight years, 125 million ties were required annually for renewal. In 2011, the Railway Tie Association estimated that there were 3,249 crossties per mile of track based upon 19 and a half inch on-center spacing. With about 212,000 miles of railway track in use at that time, that represented about 690 million crossties. About 15 million new ties were replaced annually; 14 million of these were new wood ties. [Editor's note: *The use of precast, steel-reinforced concrete ties is on the increase, worldwide. Sources state that concrete ties are stronger and last longer than timber ones. Due to their strength, they can support greater loads and higher speeds, and they have wider spacing than wood ties, thus cutting down on material requirements. Wood versus concrete ties is not up for debate in this article. Of note, while still producing a significant number of wood crossties, the Koppers Company has branched out into the production of concrete ties, as well].*

At first, ties were hand-hewn and used untreated. Hence they were subject to insect infestation and rot from water penetration. Untreated ties, therefore, were not economical because they had to be replaced frequently. Although ties were treated with mercuric chloride in 1848, creosote emerged as the best wood preservative in 1853. In Europe, creosoted ties were used from 1860, but at that time it was cost-prohibitive in the U.S. It was not until 1921 that creosote became widely used for preserving ties in this country.

Creosote and Its Importance

Creosote is a byproduct of the partial burning (destructive distillation) of organic materials. There are two types of creosote: that formed from burning wood and that formed from burning coal. Only creosote from coal is used in preserving crossties. Creosote is used as a pesticide to prevent insect damage to wood and also to prevent rot from moisture. The infusion of creosote (with other chemicals added, such as zinc and borate) under high pressure has been the most effective way to preserve wood railroad ties in this country for nearly a century.

And now for a little organic chemistry! Creosote is a complex chemical. A paper by the World Health Organization in 2004 states: "Coal tar creosote is a brownish-black/yellowish/dark green oily liquid with a characteristic odor, obtained by the fractional distillation of crude coal tars." An article by the U.S. Department of Agriculture lists 182 compounds found in creosote, all of which are hydrocarbons—molecules

This aerial photograph shows the tie treatment plant at Hagerstown, Maryland, probably during the late 1930s or early 1940s. The treatment area of the plant is at the right, while "green" lumber and finished ties and other products are to the left.

built upon the benzene ring (C_6H_6). The exact composition of creosote varies, but one of the most prominent components of creosote is naphthalene ($C_{10}H_8$).

The U.S. Environmental Protection Agency (EPA) appears to have limited data on the toxicity of creosote to humans, but lists it as only a "probable" human carcinogen. So, even if not proven to be carcinogenic, creosote is generally considered to "at least" be toxic.

Wood Preserving and My Family

My grandfather, John E. Younkin, was born in 1895 near Connellsville, Pennsylvania. His father, Eli Younkin, had a debilitating illness and died in 1911, at age 52. Perhaps seeing his father die an early death made Grandpap decide not to become a laborer, choosing instead to make his way in life working as an administrator. He became a clerk with the B&O in 1910 in Connellsville. After several years with the B&O, Grandpap found an opportunity to advance by taking a job with the Morgantown & Kingwood Railroad in Morgantown, West Virginia, just 40 miles from his hometown of Connellsville.

Grandpap left the M&K and took a job in 1920 as wood treating plant supervisor for the Pennsylvania Railroad. In 1924, he joined the Century Wood Preserving Company which became part of the Wood Preserving Division of the Koppers Company. He was named superintendent of their plant in Adelaide, Pennsylvania. Grandpap was soon promoted to District Superintendent and later to Division Superintendent. Between 1925 and 1947, he was in charge of combined operatons at Koppers wood preserving plants in Adelaide; Hagerstown, Maryland; and Green Spring, West Virginia.

Around 1928, my grandfather hired his brother-in-law, David Shelkey to be a clerk in the Adelaide office. David, my great uncle, learned all the jobs in the plant and worked his way up to Plant Superintendent, about the same time my grandfather was made Division Superintendent. His son, my second cousin, David Shelkey, Jr., provided me with a detailed explanation as to how a wood preserving plant functioned in the early 1900s.

Wood Preserving Plants in General

Before we get to Dave's description of the Adelaide plant, we need to consider the basic functional areas at tie treatment plants. In more or less sequential order of the production cycle, a plant consists of the following areas: untreated (green) tie receiving/unloading area, green tie storage/aging/drying areas (this typically takes up the majority of the facility), tie preparation/adzing/boring facility, tram storage/loading area, creosote unloading/storage area, power plant/external power supply, retort/charging facility, drip track; treated tie storage areas, treated tie loading area, transshipment track(s), machine shops and maintenance facilities, and administrative offices. The spatial layout of different plants may vary somewhat, but they generally all contain these functional areas.

The Adelaide Koppers Wood Preserving Plant

Of the tie treating plants where my grandfather worked, only the one at

(text continued on page 8)

B&O clerks at the Connellsville, Pennsylvania yard around 1910. John Younkin is the third from the right.

John E. Younkin

From B&O Clerk to Koppers Company Executive

By Barbara Park

The Early Days

Born September 29, 1895 in Somerset County, Pennsylvania, near Connellsville, John Eli Younkin was one of five children born to Eli Younkin and Mary Ellen Garlits. Eli became a carpenter in 1900, but by 1910 he was unable to work, suffering from a debilitating illness. He died in 1911 at age 52. The death of his father at a fairly young age undoubtedly influenced John's decision to seek employment in administration and management rather than endure the hardships of manual labor.

Younkin began working as a clerk in 1910 with the Baltimore & Ohio at its vast Connellsville yard. After several years with the B&O, he found an opportunity to advance and moved on to the office of the Morgantown & Kingwood Railroad in Morgantown, West Virginia, just 40 miles from his hometown of Connellsville.

Joining the Koppers Family

Following a strike on the M&K and being asked to work as a laborer in the roundhouse (which he refused), Younkin left and took a job in 1920 as the Supervisor of a wood treating plant for the Pennsylvania Railroad. In 1924, he joined the Century Wood Preserving Company—later a part of the Wood Preserving Division of the Koppers Company. He became Superintendent of their treatment plant at Adelaide, Pennsylvania. He was quickly promoted to District Superintendent and, in a short time, he became Division Superintendent. Between 1925 and 1947, was in charge of operations at the Koppers wood preserving plants in Adelaide, in Hagerstown, Maryland, and in Green Spring, West Virginia.